REMARKS

Claims 3, 7, and 8 are amended and new claims 9-25 are added. As a result, claims 1-25 are pending in the present application.

Claims 3, 7, and 8 are amended to clarify that complexity means picture complexity. New claims 9-25 are supported by the specification, including the original claims and drawings, and contain no new matter. Applicants respectfully request consideration of new claims 9-25.

The Office Action rejected claims 1-6 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,466,623 to Youn et al. ("Youn").

Applicants respectfully traverse these rejections, because Youn does not teach every element of claims 1-6.

Claim 1 recites "an estimator to gather information and estimate the signal characteristics about the video signal." Youn discloses a method and apparatus for motion estimation. (Youn, title, abstract). The "motion estimator" in Youn is totally different from the estimator in claim 1. (Youn, Fig. 8, reference numerals 706 and 708). The part of Youn cited in the Office Action discusses the shortcomings of the reuse of motion vectors in video transcoding. (Youn, col. 7, ll. 61 to col. 8 ll. 30). In Youn, the "motion estimator" detects an object's movement and measures the displacement. By contrast, claim 1 has "an estimator to gather information and estimate the signal characteristics about the video signal." Skilled artisans know signal characteristics include picture complexity and the distribution of complexity in the picture, which is not the same an object's movement. Therefore, claim 1 is patentable under 102(e) over Youn.

Claim 1 recites "an encoder to compress the reconstructed video signal according to a coding scheme devised on the estimated signal characteristics from the estimator." Again, the motion vectors in Youn are not the same as the "signal characteristics" in claim 1. The encoder is guided by these signal characteristics in claim 1. Therefore, claim 1 is patentable under 102(e) over Youn.

Claim 2 recites "a look-ahead estimator which gathers information from the incoming compressed video signal and the decoder to estimate the signal characteristics of both the future incoming pictures and current picture." Youn does not teach a look-ahead estimator, because the motion vector modification method implemented by "delta motion vector circuit 1202," "base motion vector circuit 1204," and "new motion vector circuit 1206" in Youn do not use information from "future incoming pictures." (Youn, Fig. 12, reference numerals 1202, 1204, and 1206). By contrast, Youn discloses motion vectors in frame skipping. (Youn, abstract). Skilled artisans know this has nothing to do with using information from "future incoming pictures." In Youn, "decoder 914" outputs the decoded current video frame 920 and "front encoder 606" generates "input motion vector 626," which is the motion vector associated with the current video frame. (Youn, Fig. 6, reference numbers 606 and 626, Fig. 12, reference numerals 914, 920, 626, and col. 10, ll. 36-40). Thus, the cited parts of Youn do not teach anything like the "look-ahead estimator" in claim 2 that uses information from "future incoming pictures." Therefore, claim 2 is patentable under 102(e) over Youn.

Claim 3 recites "estimator derives the picture complexity of the current picture being transcoded." Skilled artisans know picture complexity describes the signal characteristics of the picture. For example, the variance of the pixel value of a picture is a measure of the complexity of the picture signal. By contrast, Youn discloses an operation/structural/algorithmic complexity (Youn, col. 2, ll. 20-25) or a computational complexity (Youn, col. 11, ll. 23-24). Skilled artisans know that kind of complexity has a totally different meaning than "picture complexity" in claim 3. Therefore, claim 3 is patentable under 102(e) over Youn.

Claim 4 recites "said estimator estimates the complexity of each portion of the picture." In Youn, "current macroblock 130," "current frame 131," and "previous reference frame 135" describe the motion vector estimation. (Youn, Figs. 1A and 1B, reference numerals 120, 131, 135 and col. 4, ll. 5-8). As discussed above, a motion vector is not a measure of picture complexity. Rather, a motion vector is a measure of the displacement of an object in one location in a previous frame to another location in a current frame. Therefore, claim 4 is patentable under 102(e) over Youn.

Claims 5 and 6 add that said portion in claim 4 is a slice or macroblock of the picture. For the same reasons as discussed above for claim 4, claims 5 and 6 are distinguishable over Youn. Therefore, Youn does not teach every element of the claims 1-6. Consequently, Applicants request reconsideration and allowance of claim 1-6.

In addition, Applicants believe that new claims 9-25 are patentable over Youn under § 102(e). Generally, Youn discloses a method and system for generating motion vectors for transcoding. (Youn, title and abstract). By contrast, the new claims include a method and system for using picture complexity in video transcoding, which Applicants are unable to find any mention of in Youn. (See, for example, claim 9). Furthermore, the new claims include using future picture complexity to transcode the current picture. (See, for example, claims 12, 13, and 21). Applicants are unable to find any such use of future picture complexity in Youn. Therefore, Applicants respectfully request consideration and allowance of new claims 9-25.

The Office Action rejected claims 7 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Youn as applied to claim 1 and 3 and further in view of U.S. Patent No. 5,889,561 Kwok et al. ("Kwok").

Applicants respectfully traverse these rejections, because the combination of Youn and Kwok fails to teach or suggest every claim element. Thus, a *prima facie* case of obviousness has not been established for claims 7 and 8.

Claim 7 recites "said picture complexity is estimated by a function of the total bits and the average quantization step size used to code the picture in the first coding scheme." As discussed above with respect to claims 1-6, Youn does not teach or suggest picture complexity and instead discloses a method and apparatus for motion estimation, which is completely different from estimating picture complexity. (Youn, figs. 8 and 9 and col. 2, ll. 20-23). Kwok discloses a method and apparatus for scaling a compressed video bitstream through re-quantization. (Kwok, title and abstract). Applicants have carefully reviewed the Kwok reference and can find no mention of any picture complexity or picture complexity estimation. In Kwok, elements 42 and 47 in figure 4 are not an estimator. These elements are used in "quantizing" and to calculate a scale factor (SF) for bit scaling, which have nothing to do with a picture complexity estimation. (Kwok, col. 6 lines 8-25). Therefore, claim 7 is patentable under § 103(a) over the combination of Youn and Kwok.

Claim 8 recites "said picture complexity is estimated by a function of the total bits and average quantization step size used to code the portion of the picture in the first coding scheme." For the same reasons as discussed above with respect to claim 7, claim 8 is patentable under § 103(a) over the combination of Youn and Kwok.

In addition, Applicants believe that new claims 9-25 are patentable over the combination of Youn and Kwok under § 103(a). The remarks above apply equally here. Generally, Kwok discloses a method and apparatus for scaling a compressed video bitstream. (Kwok, title and abstract). Applicants are unable to find any mention of picture complexity. Also, the Office Action pointed to "quantizer" 42 and "rate controller" 47 in Fig. 4 of Kwok as teaching estimating complexity. However, these are used in "quantizing" and to calculate a scale factor (SF), which have nothing to do with a

complexity estimation. (Kwok, col. 6 lines 8-25). By contrast, the new claims include a method and system for using picture complexity in video transcoding, which Applicants are unable to find any mention of in Kwok. (See, for example, claim 9). Therefore, Applicants respectfully request that Examiner consider new claims 9-25.

In view of the foregoing, Applicants respectfully submit that all of the claims in the present application are patentably distinguishable over the references cited in the Office Action. Accordingly, Applicants respectfully request reconsideration and that the claims be passed to allowance.

Respectfully submitted,

6-6-03

Date

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